Pesticide

U.S.D.A. Experimental Laboratory
Yakima, Washington

YPLSF
1-4
7/30/1982

Over the years, wastes from the pesticide storage/formulation/mixing buildings at the Central Washington USDA Experimental Laboratory have been disposed of into an on-site septic tank drain field. This has allowed the pesticides, including DDT, to permeate the soils and potentially contaminate the groundwater. Irrigation is the primary use of downstream surface and groundwater supplies.

ENFORCEMENT SUMMARY

Site Name: U.S.D.A. Experimental Laboratory
Location: 3706 West Nob Hill Blvd.
Yakima, Washington 98902

Responsible Party
Name: Dr. Berdett, Director
3706 W. Nob Hill Blvd.
Yakima, Washington

Summary of Past and Present Enforcement Actions

Federal: None

State: None

Non-CERCLA Regulatory Activities: None

Enforcement Potential, Including Chance for Privately Funded Cleanup

Potential for Cleanup by the U.S. Dept. of Agriculture

Contacts with Firm: Dr. Berdett

Source(s) of Information: Dr. Berdett
Washington Dept. of Agriculture
Yakima Office

RESPONSE SUMMARY

Site Name: U.S.D.A. Experimental Laboratory
Location: 3706 West Nob Hill Blvd.
Yakima, Washington 98902

Summary of Past Response Activities: None

Summary of Present Response Activities: None

Plans for Response Activities: Uncertain at this time

Facility name: U.S. Dept. of Agriculture Experimental Lab.

Location: Yakima, WA., 3706 West Nob Hill Blvd., 98902

EPA Region: 10

Person(s) in charge of the facility: Dr. Berdett, U.S.D.A., Director

Name of Reviewer: H. Aldis Date: 7/30/82

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Agriculture Experimental Laboratory handling small quantities of all sorts of pesticides and disposing of them by flushing into a septic tank drain field.

Scores: S_M = (S_{gw} = 48.12 S_{sw} = 11.16 S_a =) 28.55%

S_{FE} = 0

S_{DC} = 0

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0	45	1		45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.						
2 Route Characteristics						3.2
Depth to Aquifer of Concern	0 1 2 (3)		2	6	6	
Net Precipitation	0 (1) 2 3		1	1	3	
Permeability of the Unsaturated Zone	0 (1) 2 3		1	1	3	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				11	15	
3 Containment	0 1 2 (3)		1	3	3	3.3
4 Waste Characteristics						3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)		1	18	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8		1	1	8	
Total Waste Characteristics Score				19	26	
5 Targets						3.5
Ground Water Use	0 1 2 (3)		3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 (35) 40		1	35	40	
Total Targets Score				44	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				27588	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 48.12			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0)	45	1		45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.						
2 Route Characteristics						4.2
Facility Slope and Intervening Terrain	(0) 1 2 3		1	0	3	
1-yr. 24-hr. Rainfall	(0) 1 2 3		1	0	3	
Distance to Nearest Surface Water	0 1 (2) 3		2	4	6	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				7	15	
3 Containment	0 1 2 3		1	3	3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)		1	18	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8		1	1	8	
Total Waste Characteristics Score				19	26	
5 Targets						4.5
Surface Water Use	0 1 (2) 3		3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3		2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 (12) 16 18 20 24 30 32 35 40		1	12	40	
Total Targets Score				18	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				7182	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 11.16			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1		45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a = 0			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	48.12	2315.53
Surface Water Route Score (S_{sw})	11.16	124.55
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2440.08
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		49.40
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M$		28.55

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100	S_{DC} = 0				

FIGURE 12
DIRECT CONTACT WORK SHEET

PHIL WONG

June 28, 1982 8/30/82

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: U.S. Dept. of Agriculture Laboratory

LOCATION: Yakima, Wa. 98902
3706, West Nob Hill Blvd.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

None

Rationale for attributing the contaminants to the facility:

None

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2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

Sand and gravel water table aquifer

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

< 20ft average about 8-15 feet.

Depth from the ground surface to the lowest point of waste disposal/ storage:

< 10ft

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):
Oct/Mar ≈ 6.8" 3.6" of precip in Yakima falls as snow (36" of snow)

Mean annual lake or seasonal evaporation (list months for seasonal):
Oct/Mar evaporation low.: Note average monthly temps and relative humidity.

Oct	Nov	Dec	Jan	Feb	Mar	
60°	≈45°	35-40°	25-30°	35°	50°	Temp.
65%	70%	85%	90%	80%	70%	Relative Humidity

Net precipitation (subtract the above figures):
Net infiltration probably 4-5" per year during winter months (Bill Weller, SCS, Hydrologist, Spokane)

Permeability of Unsaturated Zone

Soil type in unsaturated zone:
Sandy gravelly loam (well logs DOE files)

Permeability associated with soil type:
High

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):
Liquids (Dr Eric Halfhill U.S.D.A. Yakima).

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3 CONTAINMENT

Containment None

Method(s) of waste or leachate containment evaluated:

Disposal to septic tanks drain field

Method with highest score:

As above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Chlorinated pesticides (DDT etc)

Compound with highest score:

DDT

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Minimum of 1-40 bbls of wash water and formulated pesticide mixtures

Basis of estimating and/or computing waste quantity:

Phone conversation DR ERIC Halfhill U.S.D.A. 7/30/82

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5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water — DOE files - Water rights, public water supplies
Irrigation — DOE files - water rights

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Robert Barry well Logan Ave. SW¼ of SE¼ Sec27 T13N R 18E W.M
City of Yakima Airport well Sec35 7500ft from site (DOE files)

Distance to above well or building:

About 2000ft for Barry well.

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

> 50,000 (City of Yakima)
≈ 5000 (N66 Hill Water Co)

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

< 200 acres (DOE water rights)

Total population served by ground water within a 3-mile radius:

>50,000

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None

Rationale for attributing the contaminants to the facility:

None

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2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

< 3% (U.S.G.S. Yakima West Quad. map)

Name/description of nearest downslope surface water:

Wide Hollow Creek

Average slope of terrain between facility and above-cited surface water body in percent:

< 3%

Is the facility located either totally or partially in surface water?

No.

Is the facility completely surrounded by areas of higher elevation?

No

1-Year 24-Hour Rainfall in Inches

0.9" 38% of 2yr-24Hr Rainfall (NOAA Atlas 2).

Distance to Nearest Downslope Surface Water

2000 ft

Physical State of Waste

Liquid (Dr Eric Habfhell, U.S.DA. Yakima).

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3 CONTAINMENT

Containment None

Method(s) of waste or leachate containment evaluated:

Disposal into septic tank drainfield

Method with highest score:

As above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

DDT

Compound with highest score:

DDT

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Estimated at Not more than 40 bbls - (Conversation with Dr Eric Halfhill)

Basis of estimating and/or computing waste quantity:

Conversation with Dr Eric Halfhill U.S.D.A. - 7/30/82

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5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Irrigation

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

NONE

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

NONE

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None for drinking water.

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

480 acres S4 00699A Water right NE¼ of SE¼ Section 35
18 acres S4 00511A " SE¼ SW¼ SE¼ Sec 36

Total population served:

≡ 750 people

Name/description of nearest of above water bodies:

Wide Hollow Creek.

Distance to above-cited intakes, measured in stream miles.

≐ 8000 ft.

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

None

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

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2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

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3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?